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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/554,170	10/21/2005	Masayuki Kashimura	4007561-173525	1972
23570 7590 06/22/2011 PORTER WRIGHT MORRIS & ARTHUR, LLP INTELLECTUAL PROPERTY GROUP 41 SOUTH HIGH STREET 28TH FLOOR COLUMBUS, OH 43215				
EXAMINER				
KRUEER, KEVIN R				
ART UNIT		PAPER NUMBER		
1787				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/554,170

**Applicant(s)**

KASHIMURA ET AL.

**Examiner**

KEVIN R. KRUEER

**Art Unit**

1787

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 October 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1.5, 7-11, 13-15, 17, 18 and 23-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1.5, 7-11, 13-15, 17, 18 and 23-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No.(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/21/2010 has been entered.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
3. Claims 1, 5, 7-11, 13-15, 17, 18, and 23-25 (all claims) are rejected under 35 U.S.C. 103(a) as being unpatentable over WO99/52973 (herein referred to as Ohba) in view of Fong (US 4,786,561) NOTE: US 6,605,344 is herein relied upon as an English translation of the WO document.

Ohba teaches a gas barrier film which is produced by applying a metallic compound to the surface of a poly(meth)acrylic polymer layer (abstract). The metallic compound may be utilized alone or compounded with a resin (col 2, lines 50+). The resin may comprise alkyd resin, melamine resin, an acrylic resin, a urethane resin, a

polyester resin, an epoxy resin and the like (col 8, lines 1+). The metallic compound may comprise an alkaline earth metal or transition metal having an oxidation number of +2 (col 7, lines 22-25). The thickness of the poly(meth)acrylic layer is 0.1-50um (col 6, lines 59+). The metallic compound is applied in amounts of 0.03-20g/square meter (col 8, lines 21+). A polymer layer may be applied to the metallic compound layer (col 10, lines 26+) and a heat sealable layer may be applied to said outer polymer layer (col 10, lines 43+). Herein, the polymer layer is herein understood to read on the claimed base film and the heat sealable layer is understood to read on the claimed heat sensitive tackifier of claim 18 and the additional layer of claim 9. The film is used to package materials (col 10, lines 63+-herein understood to read on the claimed label and packaging embodiments of claims 17-20) and meets the claimed barrier properties (see Table 1).

Ohba does not teach the substrate film should be heat shrinkable. However, Fong teaches barrier coatings may be applied to oriented polyolefin substrates in order to obtain heat shrinkable films useful as overwraps (col 2, lines 51+) and labels (col 1, lines 15+). Said films are made heat shrinkable by orienting the polyolefin substrate film and then applying a coating of the barrier coating. Shrink is directly proportional to the degree of orientation of the base layer. Thus, it would have been obvious to one having ordinary skill in the art to orient the film in order to obtain and make it heat shrinkable because heat shrinkability is desired in the barrier packaging art. Furthermore, it would have been obvious to control the degree of orientation in order to obtain the desired level of heat shrinkage in both the machine and traverse directions.

With regards to the limitation that the coating is free of polyalcohol, Ohba teaches the polyalcohol is present in amounts of 1% or greater (col 5, lines 50+). However, it would have been obvious to eliminate the polyalcohol because the functions attributed thereto are not required in the barrier coating. Furthermore, the courts have held a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. Thus, it would have been obvious to utilize a coating with 0% polyalcohol because the skilled artisan would expect a composition free of polyalcohol to have the same properties as the disclosed composition having 1% polyalcohol.

With regards to the claimed oxygen permeability of claim 1, Ohba teaches the permeability is preferably less than  $400\text{cm}^3/(\text{m}^2\cdot\text{day}\cdot\text{MPa})$  (col 9, line 40). Furthermore, Ohba teaches the permeability can be controlled by selecting the degree of neutralization (col 4, lines 60+) and the thickness of the coatings (col 7, lines 57+). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the degree of neutralization and the film thickness in order to optimize the oxygen permeability of the film.

With regard to the limitation that the base film exhibits "a percent thermal shrinkage in at least one direction of 5-90% as measured by immersing the base film in hot water at 90°C for 30 seconds," the examiner takes the position that the polyolefin film of Fong will inherently meet said limitation. Specifically, Fong teaches the film will understood at least a 10% shrink when heat to about 100°C (claim 1). Alternatively,

Fong teaches the temperature at which a film will shrink is related to its melting point (col 3, lines 12+). Thus, it would have been obvious to the skilled artisan at the time the invention was made to select a base polymer with a melting point which will allow for shrinkage at any desired temperature.

With regards to claim 5, Ohba teaches the claimed relative thicknesses (claim 5). With regards to claim 11, said property is understood to be inherent to the film taught in Ohba. Said conclusion is supported by the data in Table 1 of Fong.

### ***Response to Arguments***

Applicant's arguments with respect to the pending claims have been fully considered but are not persuasive.

Applicant argues that it is surprising and non-obvious that a multilayer film including the claimed gas barrier non-oriented layers and the heat shrinkable base film exhibits heat shrink-ability without impairing the good gas barrier properties of the film without delamination. Said argument is noted but is not persuasive because Fong teaches the barrier coating will remain functional and adhered after shrinkage; thus, the results are not unexpected.

According to applicant, the prior art teaches a heating step is generally necessary to encourage migration of the polyvalent metal ion but the present invention does not require such a step. Said argument is noted but is not persuasive because the method of making a product does not patentably distinguish a claimed product from a product in the prior art unless the method inherently results in a materially different

product. Furthermore, applicant's arguments are not commensurate in scope with the claims as the claims do not state such a step is absent.

Applicant argues that Ohba explicitly teaches the polyalcohol must be present. Said argument is noted but is not persuasive because the courts have held a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. While there is no explicit teaching in Ohba that teaches said component may be excluded, there also is no teaching in the prior art that suggests polyalcohol is critical to the disclosed invention. Specifically, since Ohba teaches the coating may have as little as 1% polyalcohol, the skilled artisan would not expect the exclusion of said polyalcohol to drastically alter the film's properties. To the contrary, polycarboxylic acid is known to have excellent barrier properties but is humidity sensitive. The polyalcohol is added to improve the polycarboxylic acid's resistance to humidity by providing crosslinks. However, it is known in the art that the adjacent metal layer also provides crosslinking and a polymeric overlay provides sufficient barrier properties to humidity (e.g., see Tanaka which teaches the polyalcohol creates ester bonds which improves hot water resistance, but said properties can also be assured by providing a polymeric overlay on the polycarboxylic acid barrier films). Therefore, the skilled artisan would not expect the absence of the polyalcohol to affect oxygen barrier properties of the multi-layer film to be affected by the absence of the polyalcohol.

Applicant notes that all the examples comprise polyalcohol. Said argument is noted but is not persuasive because a reference may be relied upon for all that it fairly teaches; its teachings are not limited to preferred or exemplary embodiments.

Applicant further argues the heat treatment disclosed in Ohba has been determined to adversely affect formation of the polyvalent metal ion from the polyvalent metal compound and the migration of the formed polyvalent metal ion into the layer (a). Said argument is noted but is not persuasive as counsel's argument cannot take the place of evidence; applicant fails to point to any prior art teaching, citation, or data which supports said conclusion. The examiner also notes again that applicant's argument is not commensurate in scope with the claimed invention as the absence of a heat treatment step is not recited.

In addition, applicant argues the multilayer film according to the present invention is based on the ionic reaction between metal ions and carboxylic acid polymer and does not employ esterification. Said argument is noted but is not persuasive as the claims do not exclude esterification reactions. Furthermore, the skilled artisan would not expect esterification to occur in the absence of the polyalcohol component. Applicant With regards to applicant's argument that Ohba does not teach ionic crosslinking, the examiner respectfully disagrees and notes that the metal ions are known in the art to migrate to the carboxylic acid layer and form ionic crosslinking.

Applicant further argues the heat shrinkable multilayer film having the gas barrier properties recited in claim 1 is "unpredictable" in view of Ohba. Said argument is noted but is not persuasive as counsel's argument cannot take the place of evidence.



Specifically, applicant fails to explain why such barrier properties are not predictable. Therefore, the examiner maintains the rejection for the reasons noted above.

Applicant further argues that the examiner's discussion of Tanaka is not persuasive because Ohba teaches the metal layer may include a resin polymer yet still requires polyalcohol be present. Said argument is noted but is not persuasive; the question is not what Ohba teaches-rather, the question is what would have been obvious in view of the teachings of the prior art as a whole. As previously discussed, the polyalcohol is not taught to be critical to the invention. While its presence improves hot water resistance, such resistance can also be obtained by applying a polymeric overlay to the polycarboxylic acid barrier film (see Tanaka). Thus, the examiner maintains the position that it would have been obvious to utilize a barrier layer which does not comprise a polyalcohol for the reasons of record.

Applicant further argues the metal ion layer of Tanaka is applied by immersing the polycarboxylic acid layer in water-which one could not do in the absence of the polyalcohol and the hot water resistance it provides. Said argument is noted but is not persuasive because Tanaka was never relied upon to render the claimed invention obvious. Rather, Ohba was relied upon as the primary reference.

Applicant further argues the coating of Ohba would not shrink at the claimed treatment conditions because the skilled artisan would appreciate that to heat shrink the gas barrier film of Ohba, energy greater than that of the heat treatment conditions taught by Ohba would have to be employed. Said argument is noted but is not

persuasive. In the rejection, the orientation in the base film (not in the barrier films) is being relaxed as the claimed treatment conditions.

In addition, Applicant argues that the polymethacrylic acid layer of Ohba wherein the polyalcohol forms ester bonds upon the heat treatment has a molecular structure that is relatively stiff and lacks flexibility. Said argument is noted but is not persuasive because counsel's argument cannot take the place of evidence. There is no evidence that a film with the amount of polyalcohol taught in Ohba would be inflexible or would delaminate if applied to the substrate of Fong.

With respect to Fong, applicant argues the reference bears no relation to the teachings of Ohba. Said argument is not persuasive because both references are in the same field of endeavor; both Fong and Ohba are drawn to gas barrier packaging films. Since said films are in the same field of endeavor, the examiner maintains the position that it would have been obvious to utilize a heat shrinkable substrate as taught in Fong in the invention taught in Ohba.

Applicant further argues that Fong's disclosure does not provide an apparent reason one of ordinary skill in the art would combine any of Fong's teachings with Ohba. Said argument is not persuasive as Fong details why shrinkability is often desirable in packaging materials.

For the reasons noted above, the claims are not allowable over the prior art.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. JP 2003/292713A, US 2002/0031651, US 2005/0131162, US

3,753,965 and US 5,837,779 each teaches the application of salt to COOH surfaces.

US 6777,046 teaches a shrink film comprising a barrier layer applied thereto

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEVIN R. KRUER whose telephone number is (571)272-1510. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on 571-272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kevin R Krue/

Primary Examiner, Art Unit 1787